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ABSTRACT

The purpose of this paper is to help prepare the teacher of technical writing who is thinking of becoming an industrial consultant. The paper surveys five areas that frequently pose problems for consultants: establishing goals, extracting information from technologists and from source materials, assimilating the information, translating the information into final form, and testing the information. Suggestions are provided for dealing with the problems encountered. (GW)

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The Teacher of Technical Writing As Industrial Consultant: Quantitative and Qualitative Problems With Technological Input

A Paper presented to the CCCC Convention
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1. THE NEED FOR THE TECHNICAL WRITING CONSULTANT

Most often, the teacher of technical writing is a generalist of technology. By this I mean, in his classroom he or she may be exposed to the computer science major who is writing a report on a language compiler, a geophysicist who is interested in particular earth strata, a biologist who is deeply involved in the adaptive strategies of the gray wolf, and even the chemist who is experimenting with the chemical effects of tetrahydracannabinol. Often this diversity can be a source of frustration to the teacher. BUT his ability to cope with this variety may make him into a unique and very-much-in-demand type of technical writing consultant, one who is flexible and competent.

There is a definite need for the individual who is capable of communicating a variety of complex information. Modern industry needs such people: people who are able to communicate ideas without getting bogged down by the field terminology or afflicted with the short-sightedness of the technologist. More and more, corporations are realizing that their techno-strong personnel, i.e., engineers, chemists, draftsmen, etc. are unable to communicate their ideas well to anyone but those in their peer group. Since most research and manufacturing enterprises have a need to translate and transmit information to a broad audience that may not be technologically oriented, the techno-strong individual is often at a loss to perform the communication task. The teacher of technical writing , who is perhaps techno-weak, IS communicationally strong. It is possible, however that he may face problems which hinder his ability to communicate. This paper is meant as a survey of five basic obstacles before the consultant, those of establishing goals, extracting information, assimilating the information, translating

that information, and testing the information. Based upon the input of a number of consultants, some workable solutions are also included. The intent of this presentation is to help prepare the teacher of technical writing who is thinking of entering the consultation field.

2. POSSIBLE OBSTACLES AND METHODS OF OVERCOMING THEM

2.1 Establishing Goals

The consultant may be faced with a problem before he even sets about his work. The goals of his writing may be hazy or totally undefined. Sometimes the lack of clear-cut goals is due to management's distance from the actual project; if this is the case, the goals may become clearer once the consultant is on the job and working with the field personnel. Othertimes, goals are undefined because no one really knows what it is they need. If faced with the situation, it is best for the consultant to assume the role of writing instructor in order to get management to focus down to a reasonable point and make a clear statement of purpose. The suggestion or commitment that is derived will give the writer a starting point. Once on the job, he may find that the original goal is not viable. He must then keep management posted. Still another reason for poorly defined goals is that the project may be totally new and therefore, no one seems to know what to expect. I am presently working with the Northwest Pipeline Company on a computerization project of twelve compressor stations. This type of project has never been undertaken before and all of those involved, including the computer experts are on shakey ground. In such a dilemma, I find that an inductive strategy works best. Such a strategy involves the isolation of small bits of information at a

time, a thorough investigation of these bits, and the piecing together of these specifics into a related whole. This method is described by a fellow consultant as "one handful of mud at a time." It is especially important, no matter how goals are established, for the consultant to provide feedback to the employer if the outlined goals need to be re-evaluated or changed. If he has set out to work without a specified goal, once some work has been don, interim goals should agreed to by the management which will be based on the information as it is uncovered and the task is defined.

2.2 Extracting Information

Proceeding chronologically, the consultant may face a second obstacle , that of extracting information. This is perhaps the most difficult obstacle to surmount because it manifests itself in a variety of irritating ways.

2.2.1 Reluctant Personnel

The most obvious problem will be reluctant personnel. They may be reluctant because they really are too busy to spare the time to work with the consultant on his project. But more likely, they are reluctant to work with him because they feel his presence is a vote of "no confidence" from higher-ups. They feel they are perfectly capable of communicating effectively, so the "College Prof" who comes in to do the job becomes the target of resentment. One particular strategy that has proven successful involves becoming passive. First the consultant should state his intentions, and make the need for this particular person's help very evident. Then the consultant should take as little time away from this person's work as is possible. Perhaps a set of pre-formulated questions that can be asked and answered quickly will work, coupled with tape recording. The consultant can

reconstruct those notes, and if necessary, leave them for the individual's review. Since such persons need to be treated carefully, one other point should be made. It is always better to suggest rather than demand when one is dealing with resentful personnel. If possible, lead these persons to the conclusions that you (the consultant) have in mind. Help them make reasonable decisions, after all, it is their project. Keep in mind that you are a consultant and a translator.

2.2.2 Technologists Unable to Speak Plainly

Another source of frustration you may encounter is the technologist who is unable to speak plainly about his field. This inability may stem from his ability to perform his work with great ease. He is unused to analyzing what it is that he does. Frequently, what happens is that he speaks in conclusions or enthymemes, rather than in steps or wholes. If for instance, the technologist who is explaining a particular piece of apparatus should say, "The designers choose the elbow suction to accomplish the task..." you ought to pose tactful questions which will guide the technologist to a more fundamental level of concepts and analysis. The writing job is much easier once you are able to extract this sort of statement:" The designers choose the elbow suction, which is a type of hinge also able to produce suction pressure, because they needed flexibility as well as pressure." In the latter statement, the technologist provides you with the decision process as well as the conclusion.

Technologists have trouble speaking plainly because they depend heavily on field-related vocabulary. Some jargon is necessary, I suppose, but when unclear jargon is used, you should ask for a definition or explanation. When presented with the statement:"you will

need a .380 auto shell holder," you ought to ask precisely what that is. Hopefully, you can guide the technologist to a point where he will provide, "It is part of a hand tool, called a press that would be used to reload used brass cartridge cases for a .380 caliber automatic pistol. It's called a 'shell holder' because it holds that particular size case, or shell, firmly in the press while it is being worked upon."

2.2.3 Overabundant Source Material

A third problem when the consultant attempts to extract information might be an overabundance of materials. It is easy for the inexperienced consultant to feel intimidated by the thirty or so texts written on the subject and the five or six resident "experts" in the corporation. The process of becoming an expert would be much too exhausting, if not impossible, in the short amount of time usually allotted to the consultant. You, as consultant, would be better off analyzing the information rather than attempting to learn it. It seems that there is very little value in committing to memory particularized information, e.g., for establishing a Material Requirements Plan, if you will be working on a different project in a few weeks' time. The technical writing consultant is by definition a generalist who is communicationally strong. You should bear in mind that your goal is limited to learning only that which is necessary for effective communication.

2.3 Assimilating Information

ASSUMING the consultant has weathered through the first two areas of difficulty, he may find himself faced with the obstacle of assimilating the information he has obtained.

2.3.1 Sorting Out the Information

Sometimes there is difficulty in selecting and organizing the most important points to be made, as well as rendering a comprehensive treatment of the subject. This, of course, is not a problem unique to technical consultation, but it is nonetheless an irksome hindrance. A pigeon-hole classification system is a sensible approach to making conclusions about or discovering the importance of data. When sorting the collected information, you might indicate (1) how often the idea was mentioned, (2) how soon it was mentioned, (3) how much emphasis it received, (4) in how much detail the idea was treated, etc. Patterns will develop in the information and you ought to be able to make viable decisions.

While you are sorting out the information that will be of value to your project, be careful to weed out extraneous information. Although few of us would ever admit to being guilty of such an act, we may become reluctant to discard repetitive or irrelevant information that we have painstakingly accumulated along with the pertinent information. Unlike the graduate student who feels the need to include in his thesis every bit of data he has uncovered, the consultant must discipline himself to edit out material that is unnecessary.

2.3.2 Focusing

Another possible problem in assimilating information regards an inability to focus energy, time, and initiative on the straightest, i.e., most focused, line to the goal. You must concentrate your attention on only that data which suits your project's purpose, scope, and most importantly, audience.

2.4 Translating the Information into Final Form

2.4.1 Gearing the Material to the Audience

Given that the consultant's primary goal is to be understood by his audience, it is essential that you have a clear idea of who your audience will be. The level of information, the selection of information, the level of diction, the illustrative examples, the level of detail, all of these elements will be affected by the audience. If, for instance you were developing an operator's manual for the computer procedures at a Northwest Pipeline Compressor Station, you would not be able to assume very much on your audience's part because the operators are not particularly educated nor are they motivated. In fact, about all you can assume is that your audience can read. On the other hand, if you were writing a service manual for the computer equipment at that same compressor station, you could assume a basic level of understanding of computer technology, electronics, and machine mechanics, because the technicians who would be using the manual would be educated in these fields. You would be free to go into much greater detail and you would be free to only summarize basic principles rather than simplify them and expand upon them.

It is always best to underestimate your audience and provide too simple or too carefully constructed a bit of writing than it is to leave room for misunderstanding. I am reminded of an anecdote told to me by a colleague. The story goes that Napolean used to keep a peasant around to read important orders to before presenting them to the masses. If the peasant was able to understand whatever it was that Napolean wanted done that day, then Napolean would

issue the order. But if the peasant was confused, the order would be simplified until the order and the peasant were in phase. It is not so unlikely that the consultant will be addressing audiences similar to this peasant. You should simplify ideas until you are absolutely sure that your audience will understand your message. You might even want to try out the material on a representative member of the intended audience, if possible, to make doubly sure you are communicating effectively.

2.4.2 Confining the Final Form to the Constraints of the Project

Another problem in translating the information from its technological state to its simple state is that of confining the information in the final form to the limits of the project. It is best to define any and all constraints as precisely as possible and then to test the material against them often. If however, these elements are not delineated by the employer, then you should develop reasonable limitations and seek advice from the management.

2.4.3 Accurately Reflecting Field Conditions

It is possible that the consultant will have trouble making his writing meaningful to his audience because the writing does not accurately portray the field conditions. It is important for you to get out form behind the desk as early as you can and experience the field conditions under which your information will be used. You then will have a clearer picture of what it is that you are doing, and you can convey information expressly related to the conditions you personally experienced. If you wait too long before going out

in the field, you may find that you have misrepresented the situation in the work that you have compiled.

2.4.4 Maintaining a Pristine Attitude Toward the Material

After the consultant has been working on a particular project long enough to understand the technological information without grimacing, he must put on his brakes, so to speak, and stop himself from becoming like the other field-related personnel: short-sighted and bogged down in jargon. It is absolutely essential that the technical writer maintain a pristine attitude toward the information he is communicating. He can't start making assumptions because he now understands the information. If you find yourself in such a dilemma, recollect the ideas and information which caused you the most difficulty and be sure to painstakingly explain them to your audience. Be certain not to take any short cuts to clarity, because despite the tedium of meticulously explaining something that is abundantly clear to you, you will accomplish a much more polished job of writing if you remain innocent.

2.5 Testing the Information

A final area of difficulty to face as a consultant may be that of testing the material developed. Assuming that the material has been collected, understood, and now translated, its validity must be put to a final test. The two primary ways of testing the information are to consult key field-related personnel and to actually try out the information in the field.

2.5.1 Key Personnel

The consultant ought to rely heavily upon key field-related personnel to edit the material he has developed. Try to select not only a knowledgeable individual to help you test the information, but a person who will criticize the material efficiently. Each bit of information should be questioned before it is released because the corporation will have ultimate legal liability for the validity of the materials. If for instance, you are instructing a user as to how a bit of piping is threaded and he mashes his thumb because the instructions neglected to tell him to support the piping on a level, stable plane, the corporation may be at fault.

2.5.2 Operating Under the Field Conditions

Aside from the intellectual consideration of the material, the consultant should apply the material to its intended purpose whenever possible, to make sure that the information works. If you expect an operator to perform his duties efficiently on the basis of the information you provide in your writing, then you certainly ought to have a sample operator perform the job(s) on site to test the procedures. In many cases, the situation under which the procedures would take place can only be simulated because they do not yet exist, or they are emergency measures which should not be taken because of the risk involved. Whether in real or simulated field conditions, however, the material developed must work, or else you have not done your job. It is essential that you be able to recognize whether or not the information is workable. If it is not, it is equally important that you rewrite it until it is a viable project.

3. CONCLUSION

This paper is not meant to discourage anyone from entering technical writing consultation; it is meant only as preparation. It is realistic, I believe, to say that the technical writing consultant, by definition a communications expert, is likely to have both quantitative and qualitative problems in a technological environment. BUT an awareness of these problems, attempts at their systematic definition, and the free exchange of solutions will ultimately serve to strengthen what is being increasingly recognized as a viable and dynamic profession.

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